

REMARKS:

Response to claim rejections – 35 USC §112:

Claim 25 has been clarified. In particular, the preferred feature regarding the screening index has been removed from claim 25 and made the subject-matter of new dependant claim 26.

Response to claim rejections – 35 USC §102(b), 35 USC §103(a):

Applicant respectfully traverses these rejections.

In the present invention, the Applicant specifically indicates that he has made an inventive improvement over his own prior invention of a bergaptene-based composition disclosed in patent US 4,699,781 and its equivalent French patent 2 360 301 (from page 2 line 36 to page 3 lines 5). In this composition, **the only essence used for the composition is the pure natural citrus essence which is the source of bergaptene.**

The current claims relate to an **improved process for preparing a 5-MOP (bergaptene) based composition that involves the addition of suitable amount of bergaptene-free citrus essence, which allows the amount of 5-MOP in the composition to be adjusted.**

Even in a composition that has a very low content of 5-MOP, the addition of a suitable amount of bergaptene-free essence will ensure that other chromophores such as bergamotin or citropten that are naturally present in the natural citrus essence will be also present in the obtained composition (page 32 lines 26-31). As a result, the amount of the other chromophores does not depend upon the amount of 5-MOP (page 4 lines 32-38).

In addition, the process of the invention leads to compositions that have a total concentration of citrus essence always kept unchanged thanks to the use of bergamot-free

and natural citrus essence, in spite of modifying the concentration of 5-MOP (page 4 lines 22-27).

The process of the instant claims is thus novel over Goupil [US 4,699,781] as acknowledged by the Examiner in his statement in the official action: "*Goupil does not disclose the method of adjusting the concentration of 5-MOP as claimed*" (page 4, last paragraph).

In view of the above, it is clear that Goupil [US 4,699,781] does not anticipate the process of the invention, i.e. adjusting the amount of 5-MOP by adding a suitable amount of bergamot-free essence in the composition.

Furthermore, Pathak et al disclose methods and compositions based on Polypodium extracts for use in sunscreen photoprotection. In the context of trials assessing the photoprotective properties of these topical compositions, the skin of subjects is rendered photosensitive by subjects orally absorbing psoralens such as 5-MOP (column 17 lines 52-63). However, 5-MOP is never used as an ingredient in the topical compositions. **Pathak et al remain completely silent on a possible use of either 5-MOP and/or natural citrus essence in their photoprotective compositions.**

Therefore, this document does not disclose nor suggest the process of the instant invention, as it never addresses the issue of formulating 5-MOP-based topical compositions, and is thus irrelevant with regards to the claimed process.

Given their different fields of endeavor, there is in any case no incentive to combine the teachings of Goupil [US 4,699,781] and Pathak et al.

Consequently, none of the cited prior art documents, taken alone or in combination, offers any incentive to adjust the content of 5-MOP by adding a suitable amount of bergaptene-free essence that leads to compositions having a concentration of natural chromophores remaining unchanged, in spite of the modification of the concentration and/or the source of 5-MOP.

The process claims 12-26 thus do not contravene 35 USC §102(b) and 103(a).

Response to claim rejections –obviousness-type double patenting

Applicant respectfully traverses this ground of rejection.

Goupil [US 5,962,512] discloses a pharmaceutical composition based on 5-MOP that is used in skin diseases such as dermatoses. In order to be therapeutically efficient, the composition contains a relatively high amount of 5-MOP ranging from 60 to 100 ppm (column 1 lines 8-12).

Unlike therapeutic compositions that are prescribed and used under medical supervision, the amount of 5-MOP in non-therapeutic compositions such as cosmetics is tightly controlled and limited. Because of the reported photomutagenic and phototoxic properties of 5-MOP, US and European regulations have permitted its use in cosmetic products only at low concentration that does not exceed 60 ppm (page 5 line 5) and 1 ppm (page 2 lines 19-20), respectively, in the finished cosmetic product.

In accordance with the prior art, the person skilled in the art will certainly decrease the amount of natural citrus essence when formulating compositions that should contain only trace quantities of 5-MOP.

However, the applicant has identified that by doing so, a problem will arise regarding the amount of other chromophores such as bergamotin or citropten that are naturally present in the natural citrus essence. In the composition of the invention, the benefit of the presence of the other components of the natural citrus essence, in particular other chromophores, is not lost (page 3 lines 14-23).

By contrast, Goupil [US 5,962,512] never suggests that natural chromophores of the citrus essence are beneficial, as it never addresses the issue of the natural chromophores of the citrus essence. As a matter of fact, when formulating compositions with low content of 5-MOP, the other chromophores will either be present in low amount if the 5-MOP is provided by the natural citrus essence as suggested in Goupil [US

5,962,512] (column 1 lines 61-63), or even not be present at all if the 5-MOP is added as a pure compound.

The process of the present invention resolves efficiently this problem by adjusting the concentration of 5-MOP with bergamot-free essence (page 3 lines 34-37, claim 1). **This adjustment ensures the presence of a remaining beneficial amount of other chromophores naturally present in the citrus essence, in spite of the modification of the concentration and/or the source of 5-MOP (citrus essence or pure 5-MOP) (page 4 lines 37-38).**

Thus, the instant claims are patentably distinct from the method of formulating the compositions according to Goupil [US 5,962,512] which does not in any way suggest adjusting the concentration of 5-MOP with bergamot-free essence. Accordingly, Goupil [US 5,962,512] is not pertinent for assessing the obviousness of the claimed process as the processes for formulating therapeutic compositions, i.e. high content of 5-MOP and compositions that can also be used for cosmetics, i.e. trace quantity of 5-MOP will **take into account different constraints.**

In view of the above, the obviousness-type double patenting rejection is respectfully traversed.

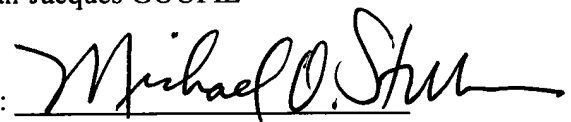
Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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October 1, 2004

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